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and overflowing. How is it that long years of school life result in such a dearth of knowledge?

XII. Relation of Self-Expression to Knowledge and Character

1. Physical Basis of Expression.

Motor Discharge, Organic Circuit.—Dewey.
Dynamo Genesis.—Baldwin.
Man a Reactive Animal.—James.
Physical Basis of Morality.—Munsterberg.

1. Functions of Expression. (a) Physical development. Growth and power of the brain and nerve system. (b) Demand for attention. (c) Concentration of images. Mental development. (d) Moral power.

2. Knowledge becomes mind nutrition by means of expression.

3. The proper exercise of all the modes of expression is the best physical exercise. Physical training has its best outcome in the development of expression.

4. Each mode of expression exercises certain bodily agents. The exercise of all of them develops the whole body.

5. The bodily agents of expression are the product of similar and appropriate exercises throughout countless generations (heredity).

6. Any physical exercise in expression that cripples the body is absolutely wrong.

7. All exercise of expression should be easy and graceful.

2. Mental Functions of Expression.

1. Expression demands the holding of images in consciousness.

2. Holding an image in consciousness is indispensable to the growth of that image. Holding transforms knowledge into nutrition.

3. By expression the memory is cultivated in the best possible way. We remember what we do.

4. Expression is the strongest stimulus to attention or study. (a) With brush, pencil or clay in hand, the observation of the object to be represented is keenest and most prolonged. (b) Reading with the motive of expression. (c) Art expression without a model demands the most careful imaging.

3. Each Mode of Expression has its Special Mental Function.

1. Gesture cultivates grace and power in manifesting thought.

2. Speech in education excites the mind to close and careful thinking.

3. Music cultivates the emotions, exalts the mind, and leads to harmony in community life.

4. Making requires very close and careful imaging.

5. Modeling develops images of form.

6. Painting is the very best means of studying color.

7. Drawing requires the most careful analysis of form and color.

8. Writing demands the concentration and expression of thought.

All the modes of expression are naturally correlated, as form and color, making and modeling, speech and writing.

4. Moral Use of Expression.

1. Expression is the self trying to realize some ideal.* The ideal to be realized determines the quality of the expression and the thought.

2. The ideal of community life is the strongest stimulus to the best quality of thought and expression.

3. Community life demands all-sided expression, *i. e.*, expression in all its modes.

Conclusion. Expression is the most practical and most important means of training the body, mind, and soul.

*See Doctrine of Interest.

(To be continued in October number.)

Suggestions for a Course of Lessons in Psychology

1. **Study in General.** An Examination of Environment. The general modes of learning subjects are well established.

1. Nature. Natural science furnishes a clear illustration of the proper method of all study. The human being is surrounded by earth, air, and water; clouds and sunshine; plant life is everywhere touching the sense-organs; in fact, everything he afterwards may study in science impinges upon him on all sides. We get little more, without study, than the knowledge of the names and some superficial relations of the great mass of objects with which we come in contact every day. Although we know a great number of objects, to use Dr. James' phrase, " We know little about them." Gaining a genuine and valuable knowledge of any

science requires long, persistent observation investigation and experiment. The student must not only come in contact with the objects, but must ask questions of them, about them, in such a way as to obtain a series of facts, out of which arise inferences. The series of inferences thus obtained are the basis of future generalization.

(a) If we study botany, plants are the objects of observation. Every one knows something about vegetation in a general way; the student, however, must examine closely the whole plant, its foliage, limbs, stems, trunks, roots, must discover its form and function and its many relations to organic and inorganic matter. Nothing but persistent efforts will ever bring usable knowledge out of a plant, or any other study. The observation must be continued, persistent, and must ever lead to new and fresh inferences.

2. From Simple to Complex. There is a normal order of observation and experiment. The first observations are necessarily superficial; they touch slightly things that have been merely seen or handled. There must be a long series of experiments and investigations, moving from outside inward, moving from easy observations to apparent inferences, then to the more and more difficult, from the superficial and easy to that which lies deeper.

(a) To try, in the initial steps, to go immediately into the deep questions of botany, would be to learn simply unmeaning generalizations.

(b) The great failure in all study of science is the failure to make thorough the preliminary and elementary studies. It is a common and fatal error for both teachers and pupils to plunge into generalizations that cannot be understood—by the pupils, at least. This course defies the law of self-activity. Subjects must be adapted to mental powers, else there is no such thing as assimilation.

3. Books Secondary. Nothing can be learned *primarily* from books. Books guide and assist in observations; prepare the minds for inferences and generalizations; present generalizations that the students must verify by facts, else they are worthless. All elementary knowledge must be acquired through observation.

4. Interest. No one can really study any subject continuously without acquiring a genuine and deep interest in that subject. For instance, one who really studies botany is ever on the alert when plants are present in woods and fields and conservatories. Everywhere the student of vegetation is constantly learning something new. (a) The love for any subject, really studied, increases at a tremendous ratio. This love is intense interest; is, indeed, the one infallible sign of true study. On the other hand, if one dislikes a subject, it is a sure indication that he has never really studied it. (b) There is a vast difference between mere words and thought; between merely seeing an object and observing it.

II. Study of Psychology. The general method of the study of psychology is the same as the study of all subjects. The student has at command, if he will use them, a series of specimens, constantly present, constantly changing, everlastingly new. Psychology is fundamentally the study of the changes of one's own consciousness, with a due regard to the content or substance of thought.

1. Consciousness. Every human being has what may be called a stream of thought that begins in early babyhood and continues throughout life, broken it may be by sleep. This stream of thought goes under the general term of consciousness. The study of the changes of one's own stream of thought, and that which goes on in the stream of thought: in other words, the investigation of consciousness and that which it contains, is the basis of all psychological study.

2. Method Introspective. The study of psychology must begin then with a long series of careful investigations of one's own consciousness and its changes. The facts acquired in regard to one's own consciousness may be used to infer that which happens in the consciousness of others. (a) The one thing absolutely indispensable in the study of psychology is to separate (in thought) the stream of thought, the images in the stream of thought, from all objects external to consciousness. Up to a certain stage of personal growth, outer objects and inner conscious states seem to all intents and purposes identical. When the outer and inner are differentiated, the student enters into a new and higher stage of development. (b) Psychology is by no means an elementary study. It is doubtful whether many students in secondary schools are ready for the scientific inspection of their

own minds. It can be easily understood how we learn to know an object: by observing it, examining it, comparing it, and analyzing it; for instance, as we should observe, examine, and analyze a tree, a flower. It is easy to believe that this examination is done in one's own mind. We observe the movements around us; we examine them and analyze them; these processes have become a second nature to us; but to tell what is going on in the mind other than the general inference that these acts of observation and analysis take place in consciousness is far deeper and more difficult to comprehend. A student who has not gone through a long course of study, under the most scientific general method, covering geography, science and other kindred subjects, is not well prepared to take the much higher step and examine scientifically the changes in his own mind. There can be no study of psychology of any worth whatever, unless there is a persistent, careful introspection of continuous and continual consciousness. The mind is in action all the time, but to see, hear, touch, or taste, and at the same time ascertain how these processes effect consciousness requires the closest and most careful and discriminating study.

3. All Questions Psychological. To the student really studying psychology, every question that arises has a psychological side. We instinctively study the minds of others; we interpret their motives. When we carry this instinctive and spontaneous action further, and endeavor to closely discriminate the thoughts of others, what they are and how acquired, we have learned to study psychology.

(a) A teacher, when he is watching pupils and trying to interpret their mental action, is studying psychology, and every new pupil is a new specimen. One can always know when he is really studying, by one infallible test: he applies his knowledge at every step, applies it in the methods of his own study and in helping others.

(b) The study of psychology means in a high sense the knowledge of one's self. It must be begun with a faith that there are immutable laws of mind action, laws that may be found, understood and used.

III. Images. It is a very difficult problem, indeed, for the teacher to ascertain just how and in what manner to begin the study of psychology. Like the study of any subject it means the selection of subjects and the examination of them. The lessons here outlined consist of a careful examination of images taken from the stream of thought called consciousness—images that are the products of past mind-action. These investigations do not by any means go deeply into the subject of psychology. They leave in entire abeyance all difficult questions. They propose a series of questions similar to those in the study of natural sciences, from which the student can lay a necessary foundation for closer study. The suggestions here given may be applied and illustrated in a thousand ways. It is best, however, to be somewhat definite in the giving of hints as to the mode of procedure.

1. An Examination of Experience. Last summer most of you had a vacation. Many of you went into the country. You had certainly experience somewhere. Try to recall those experiences. What are they? What have you left in your mind as products of your summer vacation? For myself, I can think of some beautiful lakes, bordered by primeval forests. I can recall, in general, the main features of the road to the station, to the camp where we stopped. I can now image streams, trees, logging camps, and ground burned over by forest fires. I can see the carriage in which we rode, the boat that took us across the lake; in fact, I can recall in sequence a large number of mental pictures. How do these experiences appear to me now? What is it that I have of the lakes, of the trees, of the fish we caught, and of the large ones we lost? I wish to give the main body of these experiences a general name—*images*. I have now the images which make up a series of experiences taken from my summer vacation. Images that I probably gained through my eyes and ears; images of forms and faces of men and women that I saw. I can recall the names of places, the logs, the trees, the plants that I saw. I infer then that I have a series of related images. I did not have these experiences before last summer, and therefore they are to me new images. They were images gained from my stay by the lakes.

I have made this brief description in order to stimulate my students to similar collections. Take your pens in hand and write down the images that you gained last summer, one after another. Did you gain anything else? If you did, can you call them to mind as products? Can you recall anything but images of sight and sound? If you can, what other thing came in with your experiences? When I ask you to relate these experiences, do they enter into your stream of thought one after another? What image begins the series? What follows? By holding the first image of the series, do not others follow? In what order? Is there any regular order? Is this statement true—all I have left in my mind of my vacation experience is a series of related images?

2. Experiences of Early Childhood. Can you remember the house in which you were born, in which you lived in early life? Have you an image of the land around the house? Of the rooms in the house? Of the faces you saw? How many of these early remembrances are you able to recall? What are these experiences to you? Anything except images? Do you remember the first day you went to school? The appearance of the schoolhouse? Have you an image of your teacher? Your schoolmates? Do you remember reciting your first lesson? If I should ask you to write your life, by naming a series of images from your earliest childhood to the present time, what would remain untold? What part do images play in your stream of thought?

3. Experiences in Reading. You have read a great deal, no doubt. What remains in your mind as product of your reading? (I should like to have you confine your experiences to the reading outside of the schoolroom.) Take some book that you enjoyed very much. What remains in your mind as a product of reading? What images do you recall? Many of you have read "Old Curiosity Shop." What can you recall of the book? Can you image the old shop? The old gentleman? Little Nell? What have you left except images? If the reading causes no images in your mind, what else would you have? Try to recall and relate your experiences in reading several books that you have enjoyed very much. The constant question is, What have you of that book now? What remains in your mind? What images do you recall the most easily? Did you gain these images while reading? What else did you gain while reading? What is reading? Read some good story and then recall the product.

4. Work with Your Hands. What work with your hands have you ever done? What can you cook? Describe, if you can, the process of baking bread. When I ask you to describe this process, what is recalled to your mind? You have the images of flour, of yeast, of dough, of the kneading, of putting the dough into the pan, and the pan into the oven. What else do you recall about bread-making? Recall as nearly as possible the principal things that you have made in your life, with this hypothesis in your mind, that, while making, you go through a process of imaging. Have you ever made a dress? Describe how you made it. How are you able to describe it? What is in your mind while you are in the act of describing the making of a dress? Compare the images you have gained by making things, and those you gained by reading. Which are clearer? Do you always image that which you propose to do? Recall one day's experience. Do you ever propose to do anything without first imaging the thing as done, and the process of doing?

5. Images Gained in School Work. (a) Please recall a selection of literature that you have studied. What images of it remain with you? Recall one by one the images as they appear to you while studying the bit of literature. How are the images related? Do you recall anything except images? What images are vivid? Does one image follow another in sequence? You have probably read "Paul Revere's Ride." Will you please recall this poem, and tell me the sequence of images you have? What is the first image? What is the second? etc., etc. What have you left of this poem except the images? You have studied Latin Literature. What have you left of Cæsar? Of Virgil? Can you follow, for instance, the series of images of the wars in which Cæsar engaged? The battles, geography, etc.? What have you left of this study that you cannot reproduce in images?

6. Images Gained in History. Will you please give me the most vivid images now remaining from your study of history? Those who have studied the history of Greece, what is the most distinct event of Greek history in your mind? Please recall your experiences in the study of Roman history. You have studied the history of the United States. How many can recall the history of the Revolution in a series of related images? What have you left

of this study except images? Describe the battle of Bunker Hill. What images do you recall? If you cannot recall images of events in history, what have you as a mental result of your study?

7. Geography. Please carefully recall some products of your study of geography? If geography is a description of the earth's surface, what have you now as recollections of this study? What other images have you of the earth's surface, and what have you now as recollections of this study? What other images have you of the earth's surface, gained by the study of geography? How many of you can image words alone from your study of geography? What is the difference between the images of a word and an image of a portion of the earth's surface? for instance, the image of North America, and the image of the word North America? When I write upon the board the name Greece, what does this name recall to you? Describe Greece. What is the use of a map? If you recall nothing but maps, what have you gained from the study of geography? Recall all the landscapes that you have ever seen, and those which you gained in the study of geography.

8. Comparisons between School Life and Life outside of the School. Consider questions very carefully. In which have you gained the greater number of images, in school or outside of school? Which images are more distinct, those gained in school or those gained outside of school? Which images have closer relations, those in school or those outside of school? Which images do you use more in expression, those gained in school or those gained outside of school? What is the difference between reading and study of text? In which process did you acquire the clearer images? Is it possible for you to sum up all you have ever learned in images? What have you remaining of study except images?

9. General questions. How did you gain these images on your vacation? Every time you see, do you have an image? Every time you hear, do you have an image? Every time you touch, do you have an image?

(To be continued.)

Department of Science

Wilbur S. Jackman Ira B. Meyers Charles W. Carmen

The course in nature study will include two lines of work: first, practical instruction in the subject-matter of science; second, the development, illustration, and discussion of methods of teaching the elements of natural science in elementary and secondary schools.

To this end a small area embracing an interesting and varied landscape near Winnetka has been selected for special observation and study. This has been done with a view to training the student in the methods pursued by the best schools in conducting field-work, and for the purpose of indicating how an area may be interpreted. The students selecting this course will be divided into groups of not more than thirty members each, and, in charge of teachers, will visit the field as often as may be necessary to obtain the proper data and materials for laboratory work.

The presentation of what the area affords will be from the standpoint of the landscape taken as an organism. Under this conception, every part observed will be considered in its qualitative and quantitative relations to the other parts and to the whole. The study will begin with a consideration of the organization and distribution of life as exhibited by the plants and animals, and will include an investigation of the causes that underlie present appearances. Therefore an examination will be made of the character of the soil, the amount and distribution of light and heat, and the circulation of the water.

The materials which the area produces will be treated in accordance with labora-